U.S. Department of Transportation

Urban Mass Transportation Administration

Memorandum

Subject: INFORMATION: Miami Downtown Component of Metrorail

Date: SEP 07 1982

From: Steven A. Barsony
Special Assistant

Reply to Attn of: URT-4 Barsony, 67073

To: Peter Benjamin
Associate Administrator for
Technical Assistance

As requested, I had a one day review of the Miami Downtown Component of Metrorail project. I met with the Metropolitan Dade County (MDC) Project Manager and project personnel, the Westinghouse Project Manager and project personnel and their construction and A&E subcontractors. My observations are preliminary and tentative, but I believe the following points should be brought to your attention:

1. The project is about 7 to 9 months behind schedule.

2. The civil construction costs based on an incomplete "Control Point 2" (CP#2) estimate is about $12 to $15 million over the Dec. 1981/ Jan. 1982 estimate. The major cost increases are attributed to the guideway and two or three stations. The total project cost is estimated at $116,965,513 of which $34.6 million was budgeted for construction work (excluding the maintenance building), the current engineering estimate, however, indicates the construction cost will be $46.5 million (excluding the maintenance building). It should be noted that for the last few years the engineering cost estimates have often been higher than the lowest actual bid received, so some cost reductions may occur. The MDC Project Manager, Simon Zweighaft, expects to cover potential overruns partly from the existing contingency funds ($4.0 million) and partly from various construction costs savings [Goverment Center Stations ($2.0 million), unneeded utility relocation ($1.5 million), lower fare collection equipment costs ($0.6 million), lower construction contract cost for the maintenance building ($0.5 million), etc.].

   The equipment was procured on a fixed price basis, and, therefore, no significant cost changes appear to be imminent.

3. Right of Way acquisition is slow and behind schedule, but it will not affect adversely the project schedule, according to MDC Project Manager because of the schedule slippage of the design. The appraisals on five pieces of property are not yet in, even though the schedule called for

completion by April 1982. I have a copy of a "confidential" chart indicating a cost increase of $0.6 million without the inclusion of all the appraisals. The chart is somewhat misleading, because five properties valued at $1,580,500 were donated by the owners and one property was originally estimated $870,500 higher than the actual appraisal value ($1,347,500 original estimate, appraisal $477,000).

4. The guideway design request for (negotiated) bids is scheduled to be released by the first of October, but, since the design as well as the guideway alignment is incomplete, part of the guideway will be bid on a fixed price basis and part on a unit price basis. The decision for going ahead with an incomplete design and unfrozen alignment of the entire guideway was made to entice large construction companies, who otherwise would not consider the job big enough to bid on if the guideway were broken up into two or more parts. Large construction companies usually do not bid for projects much below the $15 million range (as a minimum). It is expected that going with the whole guideway construction will save costs. I believe it is a reasonable assumption.

5. An error in judgement occurred by MDC. Gannett Flemming, the PE designer, recommended soil boring along the guideway and at station locations. MDC desired to save money and decided to use soil information from adjacent constructions. Unfortunately, based on the data from adjacent development, spread-footing design was recommended and estimated as a reasonable design to satisfy the specification requirements (i.e. hurricane winds up to 120 mph). Later, through some soil borings and further evaluation of the soil conditions, it was concluded that spread-footing design would not satisfy the requirements. The alternate design is pile-footing construction, which is more expensive than spread-footing. The cost associated with this change alone altered the estimate upward $4 to $5 million. (This increase is already reflected in the $12 to $15 million).

6. A number of changes occured in the station design. The architectural firm has designed the stations as a monument to their (A&E) achievments. Normally A&E firms design beautiful structures that one can not afford. The station designs call for underground lighting, beautiful staircases, expensive roof designs, platforms, etc. with very little consideration of costs. Unfortunately, neither Westinghouse nor MDC monitored the A&E design closely enough to stop it in time. Now that the designs are more or less complete, they have to redo them and eliminate all the frills. It will take time, causing additional delays and possible cost implications.

7. MDC, the Florida Department of Transportation (FDOT), and the City Engineering Department are not working together as a well organized, harmonious, efficient group. Each of the building permits (station or guideway) is issued by a different group. Nearly always a different person is representing FDOT or the City Engineering Department on civil engineering related meetings. The new people are unfamiliar with the project, causing the meetings to take significantly more time than they normally should. MDC is lacking the necessary clout to aggressively pursue FDOT on receiving in a timely fashion the needed building permits (e.g; The World Trade Tower building station cantilevered part has been constructed for some time, but the official building permit was only received a day before the ground breaking ceremonies). MDC's relationship with the City Engineering Department is better but not as good as it should be. MDC should be more aggressively pursuing FDOT to obtain timely approvals and building permits.

8. The MDC Program Manager has only four engineers, one or two draftsmen, one financial person and one contracts man in total. The Program Manager is a very conscientious, well qualified technical man, but conservative (i.e. not willing to stick his neck out in making decisions on less than 100% information). This causes him to appear to be a procrastinator. He does not trust his counterpart at Westinghouse even though he has confidence in Westinghouse and its product. He needs more assistance. His shortage of manpower delays the project due to his inability to review the voluminous documentation and drawings that Westinghouse and their construction and A&E subcontractors are generating in a timely fashion. Without MDC approval or concurrence, which ever the case may be, the project can not move ahead.

9. The original goals set forth for MBE participation by UMTA during the early phase of the DPM Program have not been pursued vigorously. The MBE participation is way below the agreed upon and established percentage figure.

10. Determination of location of utilities and relocation of same throughout the entire system is slow and behind schedule. It may cause some redesign of the foundations. Exact information on type, size and location of all utilities is essential to provide full footing information on drawings.

11. Resolution of the City of Miami objections to sidewalk widths at certain station locations is needed. Adverse decisions could require A&E and construction drawings redesign, additional delays, and added cost.

12. From the equipment point of view the system appears to be well in hand. The hardware is basically the same as that used at the Atlanta Airport with very minor modifications to accommodate the environmental changes (Atlanta has air conditioned, closed stations, Miami does not), and terrain conditions (10% grade). The vehicle air conditioning unit has been increased from a 7 ton compressor capacity to a 9.5 ton capacity, even though the pipes and tubings remained the same as before. The vehicle brake system was beefed up to assure safe braking of the fully loaded vehicle on a 10% grade. The bogie structural intregrity was rechecked to assure safe and reliable service life under crush load (155 passengers, 1.5 square foot) conditions.

    In conversation with MDC and Westinghouse both parties feel confident that the Miami system will be a safe, reliable one, fully satisfying the specification requirements. Never-the-less, MDC pointed out that the average age of the Westinghouse engineering staff on this project is around 24 years old. They expressed some concern, should the system encounter some technical problems, and how will this young staff be able to handle the problems. On the other hand, the Westinghouse Program Manager, John Tucker, and their Chief Engineer are very capable and experienced people who were associated with a number of similar projects and therefore should be able to resolve any problems that the system may experience. In addition, they can always call on assistance from their home office resources.

cc: Arthur E. Teele, Jr., UOA-1
Robert McManus, UGM-1
Christine Spruill, UGM-30
Carl Richardson, Region IV

DOT LIBRARY
00399264